

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) User interface apparatus for enabling a user to communicate with a processor-controlled machine, the user interface apparatus comprising a housing containing a user interface provider which comprises user interface defining means comprising:

a data requester operable to request a device description defining all of the functions that the processor-controlled machine is capable of carrying out;

~~a communicator for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;~~

a receiver operable to receive, in response to the request from the data requestor, for receiving a device description data for the provided by the
processor-controlled machine ~~and defining the functional capabilities of that processor-controlled machine;~~

a user interface element accessor operable to access for accessing user interface element data defining user interface elements that can be used to form a user interface;

an associator operable to for associating associate the functional functions capabilities defined by in the received device description data with user interface elements defined by the user interface element data; and

a generator operable to generate ~~for generating~~ user interface data defining a user interface using the user interface element data for the user interface elements associated by the associator with the ~~functional capabilities~~ functions defined by the device description ~~data~~; and

a communicator operable to communicate with the processor-controlled machine to cause the processor-controlled machine to carry out a function selected by the user using the user interface generated by the generator.

2. (Currently Amended) User interface apparatus for enabling a user to communicate with a processor-controlled machine to cause that processor-controlled machine to carry out a function, the user interface apparatus comprising a housing containing a user interface provider which comprises ~~user interface defining means~~ comprising:

a data requestor operable to request the processor-controlled machine to provide a device description defining all of the functions that the processor-controlled machine is capable of carrying out

~~a communicator for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;~~

a receiver operable to receive ~~for receiving~~ a device description data provided by the processor-controlled machine in response to the request from the data requestor ~~and defining the functional capabilities of that processor-controlled machine;~~

a user interface element accessor ~~means for accessing~~ operable to access user interface element data defining user interface elements that can be used to form a user interface;

an associator operable to associate ~~for associating~~ the functions defined by the received functional capabilities in the received device description data with user interface elements defined by the user interface element data to provide user interface element option data in which at least one function ~~functional capability~~ is associated with at least two possible alternative user interface elements;

a preference provider ~~for provider~~ providing pre-stored preference data regarding user interface element preferences;

a user interface element determiner operable to determine, ~~for determining~~ using the user interface element option data and the pre-stored preference data, the user interface elements to be used to represent the functions ~~functional capabilities~~ of the processor-controlled machine; ~~and~~

a generator operable to generate ~~for generating~~ user interface data defining a user interface from the device description using the user interface element data for the user interface elements determined by the user interface determiner ~~associated with the functional capabilities defined by the device description data~~; and

a data communicator operable to communicate with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out any of the functions defined by the device description.

3. (Original) User interface apparatus according to claim 2, wherein the preference provider is operable to provide preference data defining preferences of at least one of the user of the user interface apparatus and the supplier of the user interface apparatus.

4. (Original) User interface apparatus according to claim 2, wherein the preference provider is operable to provide preference data defining at least one of preferences for different types of user interface elements; preferences for the style of presentation of user interface elements and preferences for layout of user interface elements.

5. (Currently Amended) User interface apparatus according to claim 2, wherein the preference provider is operable to provide preference data defining at least one of preferences for different types of user interface elements ~~such as button, menu or combo box type user interface elements~~ and user interface element style preferences ~~such as at least one of colour, font, font size~~ to be used for user interface elements.

6. (Original) User interface apparatus according to claim 1, wherein the user interface comprises a graphical user interface and the apparatus further comprises a display for displaying the user interface to a user.

7. (Cancelled).

8. (Currently Amended) User interface apparatus according to claim 1, wherein the data requestor ~~communicator~~ is operable to communicate with any of a number of different processor-controlled machines to request from each processor-controlled machine a device description for the requested processor-controlled machines defining the functions that the requested processor-controlled machine is capable of carrying out and the receiver is operable to receive the device description data provided by any of said number of different processor-controlled machines ~~and defining the functional capabilities of that processor-controlled machine~~ in response to such request.

9. (Currently Amended) User interface apparatus according to claim 1, wherein the data requestor ~~communicator~~ is operable to communicate directly with a processor-controlled machine.

10. (Currently Amended) User interface apparatus according to claim 1, wherein the data requestor ~~communicator~~ is operable to communicate with a processor-controlled machine via a network to which the processor-controlled machine is coupled.

11. (Cancelled).

12. (Currently Amended) User interface apparatus according to claim 1, wherein the receiver is operable to receive the device description ~~data~~ directly from a processor-controlled machine.

13. (Currently Amended) User interface apparatus according to claim 1, wherein the receiver is operable to access the device description ~~data~~ using a look-up service provided by a network to which the processor-controlled machine is coupled.

14. (Currently Amended) User interface apparatus according to claim 1, wherein the user interface provider is provided by a processor and associated memory storing a user interface application implementable by the processor.

15. (Currently Amended) User interface apparatus according to claim 14, wherein the user interface application comprises a plurality of separate program modules ~~or fitters~~.

16. (Currently Amended) User interface apparatus according to claim 15, wherein the data requestor communicator, receiver, user interface element accessor, associator, and generator comprise respective different ones of the program modules.

17. (Currently Amended) User interface apparatus according to ~~claim 15~~ ~~when dependent on claim 2~~, wherein the user interface provider comprises a plurality of

separate program modules and wherein the data requestor, communicator, receiver, user interface element accessor, associator, preference provider, user interface element determiner and generator comprise respective different ones of the program modules.

18. (Currently Amended) A ~~processor-controlled~~ processor-controlled machine for use with a user interface apparatus in accordance with claim 1, the processor-controlled machine having a functioner for carrying out at least one function; a wireless machine communicator for communicating wirelessly with the user interface device apparatus ~~device~~ to enable the user of the user interface to cause the processor-controlled machine to carry out a function; and a device description ~~data~~ provider for providing to the user interface apparatus upon request by the data requestor a single device description data defining all of the functions that ~~functional capabilities of the~~ processor-controlled machine is capable of carrying out.

19. (Currently Amended) A ~~processor-controlled~~ processor-controlled machine according to claim 18, wherein the functioner is operable to carry out a printing function.

20. (Currently Amended) A ~~processor-controlled~~ processor-controlled machine according to claim 18, wherein the functioner is operable to carry out a facsimile communication function.

21. (Currently Amended) A ~~processor-controlled~~ processor-controlled machine according to claim 18, wherein the functioner is operable to carry out a copying function.

22. (Currently Amended) A ~~processor-controlled~~ processor-controlled machine according to claim 18, wherein the functioner is operable to carry out a scanning function.

23. (Currently Amended) A system comprising a user interface apparatus ~~in accordance with claim 1 and at least one processor-controlled machine in accordance with claim 18~~ for enabling a user to communicate with a processor-controlled machine, the user interface apparatus comprising a housing containing a user interface provider which comprises:

a data requester operable to request a device description defining all of the functions that the processor-controlled machine is capable of carrying out;

a receiver operable to receive, in response to the request from the data requestor, a device description for that processor-controlled machine;

a user interface element accessor operable to access user interface element data defining user interface elements that can be used to form a user interface;

an associator operable to associate the functions defined by the received device description data with user interface elements defined by the user interface element data;

a generator operable to generate user interface data defining a user interface using the user interface element data for the user interface elements associated by the associator with the functions defined by the device description; and

a communicator operable to communicate with the processor-controlled machine to cause the processor-controlled machine to carry out a function selected by the user using the user interface generated by the generator,

the system also comprising at least one processor-controlled machine having a functioner for carrying out at least one function, a wireless machine communicator for communicating wirelessly with the user interface device apparatus to enable the user of the user interface to cause the processor-controlled machine to carry out a function, and a device description provider for providing to the user interface apparatus upon request by the data requestor a single device description defining all of the functions that the processor-controlled machine is capable of carrying out.

24. (Currently Amended) A system according to claim 23, further comprising a user interface apparatus in accordance with claim 1 and a plurality of processor-controlled machines in accordance with claim 18 adapted to communicate over a network.

25. (Currently Amended) A system according to claim 24, further comprising a user interface apparatus in accordance with claim 1, a plurality of processor-controlled machines in accordance with claim 18 couplable to a network and a

network look-up service adapted to ~~stored~~ store data relating to the ~~processor-controlled~~ processor-controlled machines.

26. (Original) A system according to claim 24, further comprising the network.

27. (Currently Amended) A system comprising: a plurality of processor-controlled machines each having a functioner for carrying out at least one function, a network communicator for communicating with a network, and a device description ~~data~~ provider for providing a device description data defining the functional capabilities of the processor-controlled machine; and a user interface apparatus for enabling a user to communicate with any ~~[[one]]~~ of said processor-controlled machines when that processor-controlled machine is coupled to the network to cause that processor-controlled machine to carry out a function, the user interface apparatus comprising a housing carrying a user interface display for displaying a user interface to the user and containing a user interface definer provider, the user interface provider comprising:

a data requester for establishing communication with the network and for requesting a device description defining all of the functions that a processor-controlled machine coupled to the network is capable of carrying out;

~~a network communication for establishing communication with the network to enable the user of the user interface to cause one of the processor-controlled machines coupled to the network to carry out a function;~~

a receiver for receiving, in response to a request by the data requester for a device description for a processor-controlled machine coupled to the network, ~~when the network communication has established communication with the network~~, a device description data of that ~~provided by the one~~ processor-controlled machine ~~directly from the~~ and defining the functional capabilities of that processor-controlled machine;

a user interface element accessor for accessing user interface element data defining user interface elements that can be used to form a user interface;

an associator for associating the ~~functional~~ functions defined by capabilities in the received device description data with user interface elements defined by the user interface element data; [[and]]

a generator for generating user interface data defining a user interface for display on the display using the user interface element data for the user interface elements associated with the ~~functional capabilities~~ functions defined by the device description data; and

a network communicator for establishing communication with the network to enable the user of the user interface generated by the generator for a processor-controlled machine coupled to the network to cause a function associated with a user element of that user interface to be carried out.

28. (Currently Amended) A system according to claim 27, wherein ~~comprising: a plurality of processor-controlled machines each having a functioner for carrying out at least one function; a network communicator for communicating with a~~

~~network, and a device description data provider for providing device description data defining the functional capabilities of the processor-controlled machine, and a user interface apparatus for enabling a user to communicate with any one of said processor-controlled machines when that processor-controlled machine is coupled to the network to cause that processor-controlled machine to carry out a function, the user interface apparatus comprising a display for displaying a user interface to the user and a user interface definer comprising:~~

~~a network communicator for establishing communication with the network to enable the user of the user interface to cause one of the processor-controlled machines coupled to the network to carry out a function;~~

~~a receiver for receiving, when the network communicating means has established communication with the network, device description data provided by the one processor-controlled machine and defining the functional capabilities of that processor-controlled machine;~~

~~a user interface element accessor for accessing user interface element data defining user interface elements that can be used to form a user interface;~~

~~[[an]] the associator is operable to associate functions defined by for associating functional capabilities in the received device description data with user interface elements defined by the user interface element data to provide user interface element option data in which at least one functional-capability function is associated with at least two possible alternative user interface elements[[:]], and~~

~~the system further comprises:~~

a preference provider operable to provide ~~for providing~~ preference data regarding user interface element preferences; and

a user interface element determiner operable to determine, ~~for determining~~ using the user interface element option data and the preference data, the user interface elements to be used to represent the ~~functional capabilities~~ functions of the processor-controlled machine;

~~a generator for generating user interface data defining a user interface for display on the display using the user interface element data for the user interface elements associated with the functional capabilities defined by the device description data.~~

29. (Cancelled).

30. (Currently Amended) A system according to claim 27, further comprising a look-up service couplable to the network and operable to provide the user interface apparatus, when communication has been established by the data requestor ~~network communicator~~, with data relating to or identifying the device description ~~data~~ for ~~said one of said~~ processor-controlled ~~machine~~ machines.

31 - 51. (Cancelled).

52. (Currently Amended) A user interface apparatus according to claim 1, further comprising:

a user-settable data handling parameter ~~defining means~~ definer having at least one parameter settable by a user; and

a data ~~handling means for handling~~ handler operable to handle received data in accordance with at least one data handling parameter set by the user.

53. (Currently Amended) A user interface apparatus according to claim 52, wherein the data handler ~~handling means~~ is operable to divert an incoming message so that the user is not made aware of the message.

54. (Currently Amended) A user interface apparatus according to claim 52, wherein the data ~~handling means~~ handler is operable to send received data to a location determined by at least one parameter set by the user.

55. - 57. (Cancelled).

58. (Currently Amended) A user interface apparatus according to claim 1, further comprising:

a user interface ~~modifying means for modifying~~ modifier operable to modify the user interface in response to data identifying the availability of another processor-controlled machine.

59. (Currently Amended) A user interface apparatus according to claim 58, wherein the user interface ~~modifying means~~ modifier is operable to make available a copy or print user interface function in response to data identifying the availability of a printer.

60. (Cancelled).

61. (Currently Amended) A storage medium storing comprising processor implementable instructions for causing a processor to become configured as user interface apparatus ~~carry out a method~~ in accordance with claim 1 [[31]].

62. (Currently Amended) User interface apparatus for enabling a user to communicate with a processor-controlled machine, the user interface apparatus comprising user interface defining means comprising:

data requesting means for requesting a device description defining all of the functions that the processor-controlled machine is capable of carrying out;

~~communicating means for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;~~

receiving means for receiving, in response to the request from the data requesting means, a device description data for provided by the processor-controlled machine ~~and defining the functional capabilities of that processor-controlled machine;~~

user interface element accessing means for accessing user interface element data defining user interface elements that can be used to form a user interface;

associating means for associating the ~~functional capabilities~~ functions defined by ~~[[in]]~~ the received device description data with user interface elements defined by the user interface element data; ~~[[and]]~~

generating means for generating user interface data defining a user interface using the user interface element data for the user interface elements associated with the ~~functional capabilities~~ functions defined by the device description data; and

communicating means for communicating with the processor-controlled machine to cause the processor-controlled machine to carry out a function selected by the user using the user interface generated by the generating means.

63. (Currently Amended) User interface apparatus for enabling a user to communicate with a processor-controlled machine to cause that processor-controlled machine to carry out a function, the user interface apparatus comprising a housing containing user interface defining means comprising:

data requesting means for requesting the processor-controlled machine to provide a device description defining all of the functions that the processor-controlled machine is capable of carrying out;

~~communicating means for communicating with the processor-controlled machine to enable the user of the user interface to cause the processor-controlled machine to carry out a function;~~

receiving means for receiving, in response to the request from the data requesting means, a device description data for provided by the processor-controlled machine and defining the functional capabilities of that processor-controlled machine;

user interface element accessing means for accessing user interface element data defining user interface elements that can be used to form a user interface;

associating means for associating functional capabilities in functions defined by defined by the received device description ~~data~~ with user interface elements defined by the user interface element data to provide user interface element option data in which at least one ~~functional capability~~ function is associated with at least two possible alternative user interface elements;

preference means for providing pre-stored preference data regarding user interface element preferences;

user interface element determining means for determining, using the user interface element option data and the pre-stored preference data, the user interface elements to be used to represent the ~~functional capabilities~~ functions of the processor-controlled machine; ~~and~~

generating means for generating user interface data defining a user interface from the device description using the user interface element data for the user interface elements determined by the user interface element determining means; and associated with the functional capabilities defined by the device description data

data communicating means for communicating with the processor-controlled machine to enable the user of the user interface to cause the

processor-controlled machine to carry out any of the functions defined by the device description.

64. (New) User interface apparatus for enabling a user to communicate with a processor-controlled machine coupled to a network, the user interface apparatus comprising:

a network manager service operable to handle communications between the user interface apparatus and the network to obtain a device description defining all of the functions of a processor-controlled machine coupled to the network;

a map service operable to convert the device description obtained by the network manager service into a set of possible user interface elements for each function of the device description;

a layout manager service operable to determine the arrangement of the user interface elements on a display screen; and

a display service operable to enable display of a user interface generated by the user interface apparatus on a display.

65. (New) User interface apparatus according to claim 64, further comprising:

at least one personalization service operable to place constraints on the user interface by at least one of weighting the different possible user interface elements for a particular function differently and controlling the style of the user interface elements,

wherein the layout operation of the layout manager service is constrained by the personalization service.

66. (New) User interface apparatus for enabling a user to communicate with a plurality of processor-controlled machines, the user interface apparatus comprising a housing containing a user interface provider comprising:

a data requester operable to request the device descriptions defining all of the functions that the processor-controlled machines are capable of carrying out;

a receiver operable to receive, in response to the request from the data requestor, a device description for the processor-controlled machines;

a user interface element accessor operable to access user interface element data defining user interface elements that can be used to form a user interface;

an associator operable to associate the functionality created by combining the received device descriptions with user interface elements defined by the user interface element data;

a generator operable to generate user interface data defining a user interface using the user interface element data for the user interface elements associated by the associator with the functions defined by the device descriptions from all of the processor-controlled machines; and

a communicator operable to communicate with the processor-controlled machine to cause the processor-controlled machine to carry out a function selected by the user using the user interface generated by the generator.

67. (New) User interface apparatus according to claim 66, wherein one of said processor-controlled machines has a printing function and another of said processor-controlled machines has a scanning function, and wherein the user interface controller is operable to control the user interface to indicate that a copying function is available in the event that both of said processor-controlled machines are coupled to the network.

68. (New) User interface apparatus according to claim 66, wherein the network manager is operable to determine whether a particular type of processor-controlled machine is coupled to the network by registering with a manager of the network a request to be advised when a processor-controlled machine of that type is coupled to the network.

69. (New) User interface apparatus for enabling a user to control a processor-controlled machine coupled to a network, the user interface apparatus comprising:

a network communicator operable to communicate with a processor-controlled machine coupled to the network;

a display for displaying a user interface to a user;

a user interface provider for providing on the display a user interface for said processor-controlled machine such that the user interface includes user interface display elements for functions that said processor-controlled machine is capable of carrying out,

wherein the network communicator is operable to determine whether another processor-controlled machine, that in combination with said processor-controlled machine provides a further function not otherwise provided by said processor-controlled machine, is coupled to the network, and

the user interface apparatus further comprises a user interface controller operable to control the user interface for said processor-controlled machine in accordance with whether or not said other processor-controlled machine is coupled to the network so as to indicate to the user that said further function is not available when said other processor-controlled machine is not coupled to the network and to indicate to the user that said further function is available when said other processor-controlled machine is coupled to the network.

70. (New) User interface apparatus according to Claim 69, wherein the user interface controller is operable to control the user interface for said processor-controlled machine to cause a user interface display representing said further function to be shown as inactive when said other processor-controlled machine is not coupled to the network.

71. (New) User interface apparatus according to claim 5, wherein the preference provider is operable to provide preference data defining preferences for at least one of button, menu or combo box type user interface elements and at least one of color, font and font size user interface element styles to be used for user interface elements.

72. (New) User interface apparatus according to claim 66, wherein the data requester is operable to determine which of the plurality of processor-controlled machines is available, to determine whether or not the available processor-controlled machines in combination provide a function that is not provided by a single processor-controlled machine, and

the user interface apparatus further comprises a user interface controller operable to control the user interface in accordance with whether or not that function is determined to be provided.